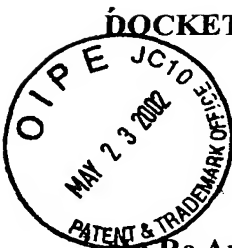


1635



DOCKET NO.: ISIS-5027

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In Re Application of:

Stanley T. Crooke

Serial No.: 10/078,949

Group Art Unit: 1635

Filing Date: February 20, 2002

Examiner: Unknown

For: OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING
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DATE OF DEPOSIT: May 20, 2002

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Gwilym J. O. Attwell
TYPED NAME: Gwilym J. O. Attwell
REGISTRATION NO.: 45,449

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).



In accordance with §1.97(b), since this Information Disclosure Statement is being

filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as set forth in §1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first office action after the filing of request for continued examination under §1.114, no additional fee is required.

- ☐ In accordance with §1.129(a), this Information Disclosure Statement is being filed in connection with ☐the first or ☐second After Final Submission, therefore:
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- ☐ The fee of **\$180.00** as set forth in §1.17(p) is attached.
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- ☐ Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.
- ☒ Copies of references listed on the attached Form PTO-1449 are enclosed herewith
- EXCEPT THAT:
- ☐ In view of the voluminous nature of references [list as appropriate], and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.

☒ In accordance with §1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. §120 have been made in the instant application:

☒ Copies of references **AA-EK and EX-GR** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior application Serial No. **09/479,783**, filed **January 7, 2000**.

☐ If any of the foregoing publications are not available to the Examiner, Applicant will endeavor to supply copies at the Examiner's request.

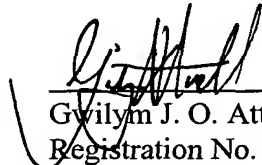
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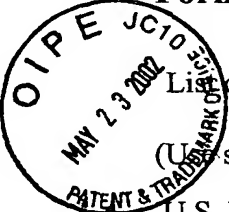
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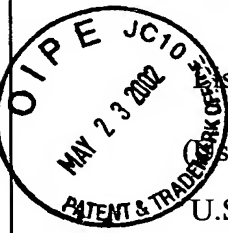
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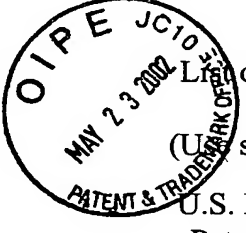

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Registration No. 45,449

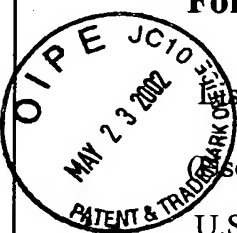
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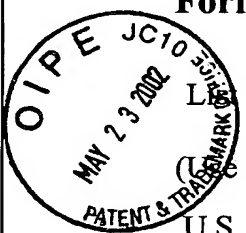
 <p>Form PTO-1449 Modified</p> <p>List of Patent and Publications Cited by Applicant (Use several sheets if necessary)</p> <p>U.S. Department of Commerce Patent and Trademark Office</p>		Docket No. ISIS-5027	Serial No. 10/078,949
		Applicant Stanley T. Crooke	
		Filing Date February 20, 2002	Group 1635
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
*	AA	Ausubel et al. (eds.), <i>Current Protocols in Molecular Biology</i> , 1988 , Wiley & Sons, New York	
*	AB	Oligonucleotide Synthesis, A Practical Approach, M.J. Gait, Ed., IRL Press, 1984	
*	AC	Oligonucleotide and Analogs, A Practical Approach, F. Eckstein, Ed., IRL Press, 1991 , Chapters 1-7	
	AD	Beaucage S. et al., "Advances in the synthesis of oligonucleotides by the phosphoramidite approach", <i>Tetrahedron Letters</i> , 1992 , 48, 2223-2311	
	AE	Beaucage S. et al., "The synthesis of modified oligonucleotides by the phosphoramidite approach and their applications", <i>Tetrahedron</i> , 1993 , 49, 6123-6194	
	AF	Bhat et al., "A Simple and Convenient Method for the Selective N-Acylation of Cytosine Nucleosides", <i>Nucleosides and Nucleotides</i> , 1989 , 8, 179-183	
	AG	Concise Encyclopedia of Polymer Science and Engineering, pgs. 858-859, Kroschwitz, J.I., Ed., John Wiley & Sons, 1990	
	AH	Crooke, S.T. et al., "Progress in Antisense Oligonucleotide Therapeutics", <i>Annu. Rev. Pharmacol. Toxicol.</i> , 1996 , 36, 107-129	
	AI	Crooke et al., "Kinetic characteristics of Escherichia coli RNase H1: cleavage of various antisense oligonucleotide-RNA duplexes", <i>Biochem. J.</i> , 1995 , 312, 599-608	
	AJ	Dagle et al., "Targeted degradation of mRNA in Xenopus oocytes and embryos directed by modified oligonucleotides: studies of An2 and cyclin in embryogenesis", <i>Nucleic Acids Research</i> , 1990 , 18, 4751-4757	
	AK	Dagle et al., "Pathways of Degradation and Mechanism of Action of Antisense Oligonucleotides in <i>Xenopus laevis</i> Embryos", <i>Antisense Res. And Dev.</i> , 1991 , 1, 11-20	
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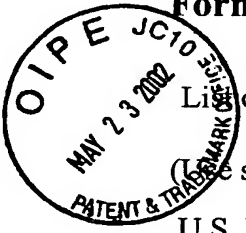
* A copy of this reference will not be forwarded to the Patent Office since it is believed to be too voluminous to send and easily obtainable by the Examiner.

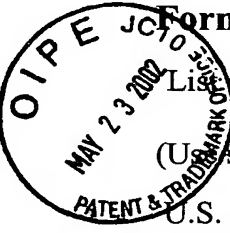
Form PTO-1449 Modified  List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office		Docket No. ISIS-5027	Serial No. 10/078,944
		Applicant Stanley T. Crooke	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	AL	Dagle et al., "Physical properties of oligonucleotides containing phosphoramidate-modified internucleoside linkages", <i>Nucleic Acids Research</i> , 1991 , 19, 1805-1810	
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	AN	Englisch, U. et al., "Chemically Modified Oligonucleotides as Probes and Inhibitors", <i>Angewandte Chemie, International Edition Engl.</i> , 1991 , 30, 613-629	
	AO	Haeuptle et al., "Translation arrest by oligonucleotides complementary to mRNA coding sequences yields polypeptides of predetermined length", <i>Nucleic Acids Res.</i> , 1986 , 14, 1427-1448	
	AP	Eder, P.S. et al., "Ribonuclease H from K562 Human Erythroleukemia Cells", <i>J. Biol. Chem.</i> , 1991 , 266, 6472-6479	
	AQ	Goodchild et al., "Conjugates of Oligonucleotides and Modified Oligonucleotides: A Review of their Synthesis and Properties", <i>Bioconjugate Chem.</i> , 1990 , 1(3), 165-187	
	AR	Kawasaki et al., "Uniformly Modified 2'-Deoxy-2'-fluoro Phosphorothioate Oligonucleotides as Nuclease-Resistant Antisense Compounds with High Affinity and Specificity for RNA Targets", <i>J. Med. Chem.</i> , 1993 , 36, 831-841	
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	AU	Martin, "Ein neuer Zugang zu 2'-O-Alkylribonucleosiden und Eigenschaften deren Oligonucleotide", <i>Helv. Chim. Acta.</i> , 1995 , 78, 486-504	
	AV	Menelev et al., <i>Bioorg. & Med. Chem. Lett.</i> , 1994 , 4(24), 2929-2934	
	AW	Milligan, <i>J. Med. Chem.</i> , 1993 , 36, 1923	
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		Applicant Stanley T. Crooke	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
AX	Monia et al., "Selective Inhibition of Mutant Ha-ras mRNA Expression by Antisense Oligonucleotides", <i>J. Biol. Chem.</i> , 1992 , 267, 19954-19962		
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AZ	Reese, C.B. et al., "4-(1,2,4-Triazol-1-yl)-and 4-(3-Nitro-1,2,4-triazol-1-yl)-1-(β-D-Arabinofuranosyl)cytosine(Ara-C)", <i>J. Chem. Soc. Perkin Trans. I</i> , 1982 , 1171-1176		
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BB	Saison-Behmoaras, T. et al., "Short modified antisense oligonucleotides directed against Ha-ras point mutation induce selective cleavage of the mRNA and inhibit T24 cells proliferation", <i>EMBO</i> , 1991 , 10, 1111-1118		
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		Applicant Stanley T. Crooke	
		Filing Date February 22, 2002	Group 1635
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	BI	Westermann et al., "Inhibition of expression of SV40 virus large T-antigen by antisense oligodeoxyribonucleotides", <i>Biomed. B. Acta.</i> , 1989 , 48, 85-93	
	BJ	Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and Their Phosphorothioate Analogs," <i>Ann. N.Y. Acad. Sci.</i> , 1992 , 2-10	
	BK	Agrawal, S., "Antisense Oligonucleotides: Towards Clinical Trials," <i>TIBTECH</i> , 1996 , 14, 376-388	
	BL	Akashi et al., "Novel Stationary Phases for Affinity Chromatography. Nucleobase-Selective Recognition of Nucleosides and Nucleotides on Poly(9-vinyladenine)-Supported Silica Gel ¹⁾ ", <i>Chem. Letters</i> , 1988 , 1093-1096	
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	BN	Arndt-Jovin et al., "Covalent Attachment of DNA to Agarose", <i>Eur. J. Biochem.</i> , 1975 , 54, 411-418	
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	BP	Blomberg, P., "Control of replication of plasmid R1: the duplex between the antisense RNA, CopA, and its target, CopT, is processed specifically <i>in vivo</i> and <i>in vitro</i> by Rnase III", <i>EMBO J.</i> , 1990 , 9, 2331-2340	
	BQ	Branch, A., "A Good Antisense is Hard to Find," <i>TIBS</i> , 1998 , 23, 45-50	
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<p>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</p>			
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	BW	Day et al., "Immobilization of polynucleotides on magnetic particles", <i>Biochem. J.</i> , 1991 , 278, 735-740	
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	BY	Duncan et al., "Affinity Chromatography of a Sequence-Specific DNA Binding Protein Using Teflon-Linked Oligonucleotides", <i>Anal. Biochem.</i> , 1988 , 169, 104-108	
	BZ	Dunn, J.J. et al., "Effect of RNAase III Cleavage on Translation of Bacteriophage T7 Messenger RNAs", <i>J. Mol. Biol.</i> , 1975 , 99, 487-499	
	CA	Elela et al., "RNase III Cleaves Eukaryotic Preribosomal RNA at a U3 snoRNP-Dependent Site", <i>Cell</i> , 1996 , 85, 115-124	
	CB	Fahy et al., "Design and synthesis of polyacrylamide-based oligonucleotide supports for use in nucleic acid diagnostics", <i>Nucl. Acids Res.</i> , 1993 , 21, 1819-1826	
	CC	Fishel et al., "Z-DNA Affinity Chromatography", <i>Methods Enzymol.</i> , 1990 , 184, 328-342	
	CD	Fodor et al., "Light-Directed, Spatially Addressable Parallel Chemical Synthesis", <i>Science</i> , 1991 , 251, 767-773	
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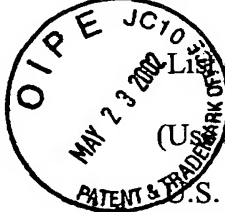
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	CE	Fusi et al., "Ribonucleases from the extreme thermophilic archaebacterium S. Solfataricus", <i>Eur. J. Biochem.</i> , 1993 , 16, 305-310	
	CF	Gabrielsen et al., "Magnetic DNA affinity purification of yeast transcription factor τ -a new purification principle for the ultrarapid isolation of near homogeneous factor", <i>Nucleic Acids Research</i> , 1989 , 17, 6253-6267	
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	CH	Gbenle, "Simultaneous Isolation of Cytoplasmic Endoribonuclease and Exoribonuclease of <i>Trypanosoma Brucei</i> ", <i>Mol. Biochem. Parasitol.</i> , 1985 , 15, 37-47	
	CI	Gerdes, K. et al., "Mechanism of Killer Gene Activation. Antisense RNA-dependent Rnase III Cleavage Ensures Rapid Turn-over of the Stable-Hok, SrmB and PndA Effector Messenger RNAs", <i>J. Mol. Biol.</i> , 1992 , 226, 637-649	
	CJ	Gingeras et al., "Hybridization properties of immobilized nucleic acids", <i>Nucl. Acids Res.</i> , 1987 , 15, 5373-5391	
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	CL	Goss, T.A. et al., "High-performance affinity chromatography of DNA", <i>J. Chromatogr.</i> , 1990 , 508, 279-287	
	CM	Guo, et al., "Direct fluorescence analysis of genetic polymorphisms by hybridization with oligonucleotide arrays on glass supports", <i>Nucl. Acids Res.</i> , 1994 , 22, 5456-5465	
	CN	Hyrup, B. et al., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", <i>Bioorganic & Med. Chem.</i> , 1996 , 4, 5-23	
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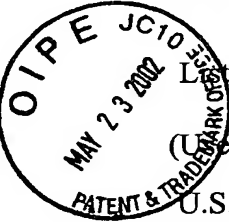
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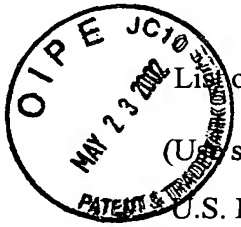
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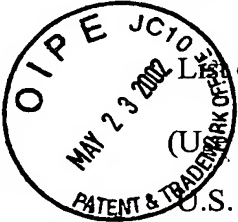
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CR	Kawaguchi et al., "Purification of DNA-binding transcription factors by their selective adsorption of the affinity atex particles", <i>Nucleic Acids Research</i> , 1989 , 17, 6229-6240	
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CT	Knecht, D., "Application of Antisense RNA to the Study of the Cytoskeleton: Background, Principles, and a Summary of Results Obtained with Myosin Heavy Chain", <i>Cell Motil. Cytoskel.</i> , 1989 , 14, 92-102	
CU	Knochbin et al., "An antisense RNA involved in p53 mRNA maturation in murine erythroleukemia cells induced to differentiate", <i>EMBO J.</i> , 1989 , 8, 4107-4114	
CV	Krinke, L. et al., "RNase III-dependent hybrolsis of λ cII-O gene mRNA mediated by λ OOP antisense RNA", <i>Genes & Devel.</i> , 1990 , 4, 2223-2233	
CW	Krystal et al., "N-myc mRNA Forms an RNA-RNA Duplex with Endogenous Antisense Transcripts", <i>Mol. And Cell. Biol.</i> , 1990 , 10, 4180-4191	
CX	Liao, "A pyrimidine-guanine sequence-specific ribonuclease from <i>Rana catesbeiana</i> (bullfrog) oocytes", <i>Nucl. Acids Res.</i> , 1992 , 20, 1371-1377	
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CZ	Lund et al., "Assessment of methods for covalent binding of nucleic acids to magnetic beads, Dynabeads[], and the characteristics of the bound nucleic acids in hybridization reactions", <i>Nucl. Acids Res.</i> , 1988 , 16, 10861-10880	


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		Applicant Stanley T. Crooke		
		Filing Date February 20, 2002	Group 1635	
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)				
	DA	Maniak, M. et al., "Evidence for a feedback regulated back-up promoter which controls permanent expression of a <i>Dictyostelium</i> gene", <i>Nucl. Acids Res.</i> , 1990 , 18, 5375-5380		
	DB	Matson et al., "Biopolymer Synthesis on Polypropylene Supports", <i>Anal. Biochem.</i> , 1994 , 217, 306-310		
	DC	Maskos, U. et al., "Oligonucleotide hybridisations on glass supports: a novel linker for oligonucleotide synthesis and hybridisation properties of oligonucleotides synthesised <i>in situ</i> ", <i>Nucl. Acids. Res.</i> , 1992 , 20, 1679-1684		
	DD	Meegan, J.M. et al., "Double-Stranded Ribonuclease Coinduced with Interferon", <i>Science</i> , 1989 , 244, 1089-1091		
	DE	Metlev, et al., "Study of antisense oligonucleotide phosphorothioates containing segments of oligodeoxynucleotides and 2'-methyloligoribonucleotides", <i>Bioorg. & Med. Chem. Lett.</i> , 1994 , 4, 2929-2934		
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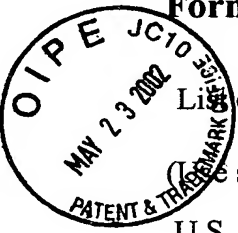
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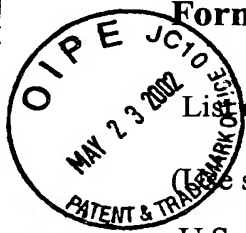
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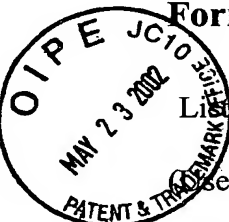
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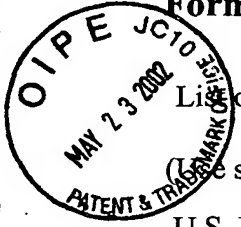
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